

File

Date: February 19, 1985

Subject: • Comparison of Tar, Nicotine and Carbon Monoxide Deliveries
for Market Sample #28: TITL versus Philip Morris versus FTC

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category (15.4 mg tar or less) compared to 76% for the previous market sample. The average nicotine delivery for FTC was significantly lower than both Philip Morris and TITL. The lower FTC nicotine delivery may be attributed to the method used by FTC to establish the standard curve for nicotine analysis. FTC's average CO delivery was also significantly lower than that of TITL. A comparison of the average tar, nicotine and CO deliveries for Market Sample #28 and prior surveys is given in Table XVI.

The average differences in the tar and nicotine deliveries by incremental tar ranges are reported in Tables I and II, respectively. Philip Morris averaged higher in tar than TITL for the 0-5 mg and 6-10 mg ranges, or 50% of the brands, and higher than FTC for 93% of the brands tested. TITL's average tar delivery was higher than that of FTC in all categories except 0-5 mg. The two laboratories showed no difference in tar delivery in the 6-10 mg range.

The Philip Morris average nicotine delivery was higher than TITL in all tar categories except 21-25 mg. FTC averaged lower than TITL and Philip Morris in all delivery ranges. Overall nicotine averages and average differences in incremental tar ranges were consistent with the trends reported in Market Sample #27. The correlations in the tar and nicotine deliveries for the three laboratories are illustrated in Graphs 1-6.

Table III shows the average differences in CO delivery observed among the three laboratories in increments of 5 mg. TITL averaged higher than Philip Morris, and significantly higher than FTC in all categories. The overall CO averages were consistent with those reported for Market Sample #27. Graphs 7-9 show the correlations in CO delivery for the three laboratories.

The individual brand comparisons by manufacturer for tar, nicotine and CO delivery are reported in Tables IV-XV. Large differences observed between laboratories may be attributed to different sampling methods and the ability of Philip Morris to detect brand modifications. Brand modifications have been footnoted where applicable, and those data have been omitted from the overall averages.

February 19, 1985

It has been determined that the accepted FTC testing methodology does not accurately measure the deliveries of Brown & Williamson's Barclay and Kool Ultra cigarettes; therefore, those brands were omitted from the comparative study. Additions and deletions of brands since the publication of Market Sample #27 are listed in Table XVII.

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TABLE I

DIFFERENCES IN TAR DELIVERY IN INCREMENTS OF 5 MG OF TAR DELIVERY¹

| <u>Tar Delivery Range, mg/cigt.</u> | <u>N</u> | <u>Average Difference TITL-PM</u> | <u>Average Difference FTC-PM</u> | <u>Average Difference TITL-FTC</u> |
|---|----------|---|--|--|
| 0 - 5 | 37 | -0.7 | -0.4 | -0.3 |
| 6 - 10 | 55 | -0.5 | -0.4 | 0.0 |
| 11 - 15 | 43 | +0.2 | -0.1 | +0.3 |
| 16 - 20 | 37 | +0.3 | -0.2 | +0.5 |
| 21 - 25 | 8 | +1.8 | +0.7 | +1.1 |
| 26 and above | 4 | +0.8 | 0.0 | +0.8 |
| OVERALL | 184 | -0.1 | -0.2 | +0.2 |
| 0 - 15 | 135 | -0.3 | -0.3 | 0.0 |
| 16 - 20 | 37 | +0.3 | -0.2 | +0.5 |
| 21 and above | 12 | +1.5 | +0.5 | +1.0 |

¹The tar ranges are determined by FTC data.

TABLE II

DIFFERENCES IN NICOTINE DELIVERY IN INCREMENTS OF 5 MG OF TAR DELIVERY¹

| <u>Tar Delivery Range, mg/cigt.</u> | <u>N</u> | <u>Average Difference TITL-PM</u> | <u>Average Difference FTC-PM</u> | <u>Average Difference TITL-FTC</u> |
|---|----------|---|--|--|
| 0 - 5 | 37 | -0.04 | -0.07 | +0.02 |
| 6 - 10 | 55 | -0.04 | -0.09 | +0.05 |
| 11 - 15 | 43 | -0.02 | -0.12 | +0.10 |
| 16 - 20 | 37 | -0.02 | -0.13 | +0.10 |
| 21 - 25 | 8 | 0.00 | -0.16 | +0.15 |
| 26 and above | 4 | -0.07 | -0.23 | +0.16 |
| OVERALL | 184 | -0.03 | -0.11 | +0.07 |
| 0 - 15 | 135 | -0.03 | -0.09 | +0.06 |
| 16 - 20 | 37 | -0.02 | -0.13 | +0.10 |
| 21 and above | 12 | -0.02 | -0.18 | +0.16 |

¹The tar ranges are determined by FTC data.

TABLE III

DIFFERENCES IN CO DELIVERY IN INCREMENTS OF 5 MG OF CO DELIVERY¹

| <u>CO Delivery Range, mg/cigt.</u> | <u>N</u> | <u>Average Difference TITL-PM</u> | <u>Average Difference FTC-PM</u> | <u>Average Difference TITL-FTC</u> |
|--|----------|---|--|--|
| >0.4 - 5 | 27 | +0.1 | -0.5 | +0.5 |
| 6 - 10 | 58 | +0.3 | -0.4 | +0.8 |
| 11 - 15 | 73 | +0.5 | -0.7 | +1.2 |
| 16 - 20 | 25 | +0.8 | -0.6 | +1.4 |
| 21 and above | 1 | +1.0 | -0.2 | +1.2 |
| OVERALL | 184 | +0.4 | -0.6 | +1.0 |

¹The CO ranges are determined by FTC data.

TABLE IV
PHILIP MORRIS

| Brand | Tar, mg/cigt. | | | | Nicotine, mg/cigt. | | |
|--|---------------|------|------|------|--------------------|------|------|
| | PM Target | TITL | PM | FTC | TITL | PM | FTC |
| Alpine 85 | 16.0 | 15.5 | 16.2 | 15.6 | 1.03 | 1.09 | 0.95 |
| Benson & Hedges 70 (Box) | 1.0 | 0.7 | 1.4 | 1.2 | 0.08 | 0.14 | 0.07 |
| Benson & Hedges 85 (Box) | 14.5 | 14.6 | 15.1 | 14.8 | 1.18 | 1.30 | 1.10 |
| Benson & Hedges 100 | 16.0 | 16.0 | 16.1 | 15.9 | 1.11 | 1.14 | 1.03 |
| Benson & Hedges Menthol 100 | 16.0 | 15.9 | 16.4 | 15.7 | 1.12 | 1.16 | 1.04 |
| Benson & Hedges 100 (Box) | 16.0 | 16.3 | 16.5 | 15.8 | 1.11 | 1.19 | 1.02 |
| Benson & Hedges Menthol 100 (Box) | 16.0 | 16.8 | 16.6 | 16.1 | 1.13 | 1.22 | 1.01 |
| B & H DeLuxe Ultra Lights 100 (Box) | 6.0 | 5.0 | 6.0 | 5.0 | 0.44 | 0.47 | 0.40 |
| B & H DeLuxe Ultra Lights Men. 100 (Box) | 6.0 | 5.2 | 6.1 | 5.2 | 0.46 | 0.48 | 0.42 |
| Benson & Hedges Lights 100 | 10.5 | 10.2 | 10.4 | 10.1 | 0.78 | 0.79 | 0.73 |
| Benson & Hedges Lights Menthol 100 | 10.5 | 9.5 | 10.4 | 9.6 | 0.74 | 0.80 | 0.70 |
| B & H Multifilter 85 | 11.5 | 12.9 | 12.1 | 12.1 | 0.86 | 0.90 | 0.77 |
| B & H Multifilter Menthol 85 | 11.5 | 12.6 | 12.9 | 12.2 | 0.85 | 0.91 | 0.76 |
| Cambridge 85 | 1.0 | 0.5 | 1.2 | 0.8 | 0.10 | 0.18 | 0.08 |
| Cambridge 85 (Box) | 0.0 | <0.5 | 0.00 | * | <0.02 | 0.00 | * |
| Cambridge 100 | 5.0 | 4.3 | 4.9 | 4.7 | 0.45 | 0.47 | 0.44 |
| English Ovals 70 (Box) | 22.0 | 23.5 | 22.4 | 23.1 | 1.88 | 2.09 | 1.75 |
| English Ovals 85 (Box) | 26.0 | 28.3 | 27.9 | 28.0 | 2.32 | 2.59 | 2.10 |
| Galaxy 85 | 14.0 | 14.5 | 13.6 | 13.9 | 1.00 | 1.00 | 0.89 |
| Marlboro 80 (Box) | 16.0 | 16.2 | 16.2 | 16.1 | 1.06 | 1.10 | 0.97 |
| Marlboro 85 | 16.0 | 16.3 | 16.1 | 16.0 | 1.06 | 1.10 | 1.00 |
| Marlboro Menthol 85 | 16.0 | 15.9 | 16.0 | 15.6 | 1.05 | 1.10 | 0.96 |
| Marlboro 100 | 16.0 | 16.5 | 16.2 | 16.3 | 1.13 | 1.15 | 1.05 |
| Marlboro 100 (Box) | 16.0 | 16.4 | 16.6 | 16.0 | 1.13 | 1.18 | 1.05 |
| Marlboro Lights 85 | 11.0 | 10.5 | 11.1 | 10.2 | 0.75 | 0.80 | 0.68 |
| Marlboro Lights 85 (Box) | 11.0 | 10.4 | 10.9 | 10.1 | 0.74 | 0.80 | 0.69 |
| Marlboro Lights 100 | 11.0 | 10.4 | 11.0 | 10.1 | 0.79 | 0.83 | 0.71 |
| Merit 85 | 8.0 | 7.6 | 8.2 | 7.6 | 0.56 | 0.63 | 0.52 |
| Merit Menthol 85 | 8.0 | 7.3 | 7.9 | 7.9 | 0.56 | 0.59 | 0.54 |
| Merit 100 | 10.0 | 9.7 | 10.1 | 10.3 | 0.74 | 0.78 | 0.71 |
| Merit Menthol 100 | 10.0 | 9.3 | 10.3 | 9.4 | 0.72 | 0.77 | 0.67 |
| Merit Ultra Lights 85 | 4.0 | 3.9 | 4.6 | 4.9 | 0.36 | 0.42 | 0.38 |
| Merit Ultra Lights Menthol 85 | 4.0 | 3.7 | 4.9 | 4.7 | 0.36 | 0.44 | 0.37 |
| Merit Ultra Lights 100 | 5.0 | 4.3 | 4.8 | 5.1 | 0.40 | 0.42 | 0.43 |
| Merit Ultra Lights Menthol 100 | 5.0 | 3.9 | 5.1 | 4.1 | 0.38 | 0.44 | 0.35 |
| Parliament Lights 80 (Box) | 9.0 | 8.3 | 9.0 | 8.6 | 0.64 | 0.70 | 0.61 |
| Parliament Lights 85 | 9.0 | 8.6 | 8.9 | 8.7 | 0.68 | 0.72 | 0.63 |
| Parliament Lights 100 | 11.5 | 11.6 | 12.1 | 11.6 | 0.91 | 0.96 | 0.83 |
| Philip Morris 70 | 21.0 | 22.2 | 20.4 | 20.8 | 1.38 | 1.37 | 1.24 |
| Philip Morris Commander 85 | 25.0 | 26.9 | 24.8 | 25.7 | 1.73 | 1.68 | 1.59 |
| Philip Morris International 100 (Box) | 17.0 | 17.2 | 16.6 | 16.8 | 1.17 | 1.16 | 1.07 |
| Philip Morris International Men. 100 (Box) | 17.0 | 17.3 | 17.4 | 16.7 | 1.19 | 1.14 | 1.07 |
| Players 70 (Box) | 24.0 | 25.4 | 23.7 | 25.4 | 2.04 | 1.91 | 1.90 |
| Players 85 (Box) | 12.0 | 11.5 | 11.7 | 11.7 | 0.85 | 0.89 | 0.80 |
| Players Menthol 85 (Box) | 12.0 | 11.6 | 11.9 | 11.6 | 0.86 | 0.87 | 0.79 |
| Players 100 (Box) | 14.0 | 13.6 | 13.6 | 13.1 | 0.97 | 1.01 | 0.89 |
| Players Menthol 100 (Box) | 14.0 | 13.1 | 13.9 | 12.9 | 0.95 | 0.96 | 0.87 |
| Saratoga 120 (Box) | 14.5 | 14.1 | 14.4 | 13.8 | 1.02 | 1.06 | 0.94 |
| Saratoga Menthol 120 (Box) | 14.5 | 13.8 | 14.4 | 14.0 | 1.02 | 1.04 | 0.93 |
| Virginia Slims 100 | 14.5 | 14.8 | 14.4 | 14.3 | 1.02 | 1.00 | 0.93 |
| Virginia Slims Menthol 100 | 14.5 | 14.9 | 14.8 | 14.5 | 1.04 | 1.05 | 0.94 |
| Virginia Slims Lights 100 (Box) | 9.0 | 7.9 | 8.6 | 7.7 | 0.64 | 0.66 | 0.57 |
| Virginia Slims Lights Menthol 100 (Box) | 9.0 | 7.9 | 8.6 | 7.8 | 0.63 | 0.68 | 0.56 |

*Below the sensitivity of the method.

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TABLE V
R. J. REYNOLDS

| Brand | Tar, mg/cigt. | | | Nicotine, mg/cigt. | | |
|----------------------------------|---------------|------|------|--------------------|------|------|
| | TITL | PM | FTC | TITL | PM | FTC |
| Bright 85 | 6.0 | 6.9 | 6.1 | 0.55 | 0.59 | 0.52 |
| Bright 100 | 6.0 | 7.1 | 6.0 | 0.57 | 0.65 | 0.52 |
| Camel 70 | 22.3 | 20.2 | 21.2 | 1.53 | 1.54 | 1.40 |
| Camel 80 (Box) | 16.6 | N.A. | 16.1 | 1.16 | N.A. | 0.08 |
| Camel 85 | 15.6 | 14.7 | 15.6 | 1.14 | 1.12 | 1.07 |
| Camel Lights 80 (Box) | 8.7 | 10.3 | 8.8 | 0.72 | 0.84 | 0.69 |
| Camel Lights 85 | 8.4 | 9.2 | 8.3 | 0.69 | 0.72 | 0.66 |
| Camel Lights 100 | 12.2 | 11.9 | 11.5 | 0.93 | 0.97 | 0.83 |
| Century 85 | 14.7 | N.A. | 14.2 | 1.05 | N.A. | 0.94 |
| Century Lights 85 | 9.0 | N.A. | 9.1 | 0.73 | N.A. | 0.69 |
| Doral II 85 | 4.1 | 5.1 | 4.2 | 0.41 | 0.50 | 0.38 |
| Doral II Menthol 85 | 4.3 | 4.9 | 4.3 | 0.43 | 0.46 | 0.38 |
| More Lights 100 (Box) | 8.4 | 8.8 | 8.0 | 0.75 | 0.76 | 0.65 |
| More Lights Menthol 100 (Box) | 7.5 | 8.1 | 7.6 | 0.67 | 0.70 | 0.61 |
| More 120 | 17.2 | 17.1 | 16.8 | 1.32 | 1.36 | 1.19 |
| More Menthol 120 | 16.6 | 16.6 | 16.0 | 1.31 | 1.36 | 1.21 |
| Now 80 (Box) | <0.5 | 0.00 | * | <0.02 | 0.00 | * |
| Now 85 | 0.8 | 1.2 | 1.2 | 0.13 | 0.18 | 0.11 |
| Now Menthol 85 | 0.7 | 1.3 | 1.0 | 0.12 | 0.18 | 0.09 |
| Now 100 | 2.0 | 2.6 | 2.6 | 0.25 | 0.34 | 0.27 |
| Now 100 (Box) | <0.5 | N.A. | * | 0.03 | N.A. | 0.07 |
| Now Menthol 100 | 1.6 | 2.4 | 2.0 | 0.22 | 0.28 | 0.24 |
| Salem 85 | 16.8 | 16.1 | 16.0 | 1.18 | 1.20 | 1.06 |
| Salem 100 | 16.7 | 17.1 | 16.0 | 1.33 | 1.36 | 1.21 |
| Salem Lights 85 | 9.6 | 9.3 | 9.1 | 0.79 | 0.77 | 0.70 |
| Salem Lights 100 | 9.6 | 10.1 | 9.2 | 0.82 | 0.86 | 0.74 |
| Salem Slim Lights 100 (Box) | 8.4 | 8.6 | 8.1 | 0.74 | 0.75 | 0.66 |
| Salem Ultra Lights 85 | 4.8 | 5.6 | 5.0 | 0.47 | 0.50 | 0.43 |
| Salem Ultra Lights 100 | 4.6 | 5.9 | 4.7 | 0.45 | 0.52 | 0.42 |
| Vantage 85 | 9.8 | 9.5 | 9.7 | 0.78 | 0.78 | 0.71 |
| Vantage Menthol 85 | 9.3 | 9.2 | 9.2 | 0.71 | 0.72 | 0.67 |
| Vantage 100 | 9.0 | 9.5 | 9.4 | 0.76 | 0.79 | 0.71 |
| Vantage Menthol 100 | 9.1 | 10.2 | 9.3 | 0.76 | 0.84 | 0.72 |
| Vantage Ultra Lights 85 | 4.5 | 5.3 | 4.7 | 0.45 | 0.48 | 0.43 |
| Vantage Ultra Lights Menthol 85 | 4.4 | 5.5 | 4.6 | 0.43 | 0.46 | 0.40 |
| Vantage Ultra Lights 100 | 4.5 | 5.2 | 5.0 | 0.46 | 0.48 | 0.45 |
| Vantage Ultra Lights Menthol 100 | 4.7 | 5.4 | 5.1 | 0.46 | 0.48 | 0.44 |
| Winston 80 (Box) | 16.7 | 15.3 | 16.1 | 1.17 | 1.14 | 1.07 |
| Winston 85 | 16.1 | 16.1 | 15.8 | 1.14 | 1.21 | 1.06 |
| Winston 100 | 16.8 | 17.0 | 16.5 | 1.29 | 1.34 | 1.20 |
| Winston Lights 85 | 8.8 | 9.0 | 8.4 | 0.72 | 0.70 | 0.65 |
| Winston Lights 100 | 11.8 | 12.0 | 11.5 | 0.92 | 0.92 | 0.83 |
| Winston Ultra Lights 85 | 4.7 | 5.1 | 4.8 | 0.47 | 0.50 | 0.42 |
| Winston Ultra Lights 100 | 5.0 | 5.6 | 5.3 | 0.48 | 0.51 | 0.45 |
| Winston International 100 (Box) | 16.1 | 16.2 | 15.5 | 1.20 | 1.34 | 1.10 |

*Below the sensitivity of the method.

N.A. = Not available

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TABLE VI

LORILLARD

| Brand | Tar, mg/cigt. | | | Nicotine, mg/cigt. | | |
|---------------------------------|---------------|-------------------|------|--------------------|-------------------|------|
| | TITL | PM | FTC | TITL | PM | FTC |
| Kent Golden Lights 85 | 8.0 | 8.4 | 8.7 | 0.77 | 0.82 | 0.75 |
| Kent Golden Lights Menthol 85 | 7.5 | 8.3 | 8.2 | 0.70 | 0.79 | 0.69 |
| Kent Golden Lights 100 | 8.4 | 9.6 | 9.3 | 0.83 | 0.93 | 0.84 |
| Kent Golden Lights Menthol 100 | 8.0 | 8.8 | 9.1 | 0.78 | 0.84 | 0.79 |
| Kent 80 (Box) | 12.5 | 12.8 | 12.3 | 0.97 | 1.05 | 0.87 |
| Kent 85 | 11.9 | 12.2 | 11.9 | 0.97 | 1.02 | 0.91 |
| Kent 100 | 13.5 | 13.2 | 12.9 | 1.13 | 1.14 | 1.01 |
| Kent Menthol 100 | 15.7 | 15.4 | 15.3 | 1.36 | 1.32 | 1.25 |
| Kent III 85 | 2.4 | 2.9 | 2.6 | 0.32 | 0.37 | 0.29 |
| Kent III 100 | 3.9 | 4.4 | 4.1 | 0.45 | 0.46 | 0.42 |
| Max 120 | 19.1 | 17.8 | 18.2 | 1.57 | 1.50 | 1.40 |
| Max Menthol 120 | 19.1 | 18.2 | 18.7 | 1.57 | 1.52 | 1.44 |
| Newport Menthol 80 (Box) | 16.3 | 15.9 | 15.5 | 1.25 | 1.24 | 1.14 |
| Newport Menthol 85 | 17.5 | 16.7 | 16.8 | 1.33 | 1.35 | 1.21 |
| Newport Menthol 100 | 20.3 | 19.7 | 19.5 | 1.58 | 1.58 | 1.46 |
| Newport Lights Menthol 80 (Box) | 8.5 | 8.1 | 8.9 | 0.76 | 0.73 | 0.72 |
| Newport Lights Menthol 85 | 7.8 | 8.8 | 8.1 | 0.74 | 0.77 | 0.70 |
| Newport Lights Menthol 100 | 8.7 | 8.8 | 9.5 | 0.82 | 0.84 | 0.83 |
| Newport Red 80 (Box) | 12.6 | 13.0 | 12.1 | 1.02 | 1.10 | 0.94 |
| Newport Red 85 | 13.9 | 13.5 | 13.7 | 1.15 | 1.11 | 1.04 |
| Old Gold 85 | 17.6 | 16.5 | 17.2 | 1.39 | 1.41 | 1.25 |
| Old Gold 100 | 21.0 | 18.1 ^a | 20.2 | 1.70 | 1.48 ^a | 1.52 |
| Old Gold Lights 85 | 8.8 | 9.3 | 9.3 | 0.86 | 0.92 | 0.82 |
| Old Gold Straights 85 (NF) | 27.2 | 25.2 | 25.8 | 1.82 | 1.69 | 1.63 |
| Satin 100 | 9.6 | 10.2 | 9.9 | 0.90 | 0.96 | 0.85 |
| Satin Menthol 100 | 9.6 | 10.0 | 9.4 | 0.89 | 0.92 | 0.82 |
| Spring 100 | 19.7 | 19.1 | 18.9 | 1.20 | 1.13 | 1.05 |
| Triumph 85 | 2.5 | 3.4 | 2.9 | 0.33 | 0.38 | 0.30 |
| Triumph Menthol 85 | 2.6 | 3.4 | 2.7 | 0.33 | 0.39 | 0.30 |
| Triumph 100 | 3.8 | 4.8 | 4.0 | 0.44 | 0.50 | 0.41 |
| Triumph Menthol 100 | 3.5 | 4.5 | 3.8 | 0.41 | 0.50 | 0.39 |
| True 85 | 4.5 | 4.9 | 5.9 | 4.8 | 0.44 0.48 | 0.54 |
| True Menthol 85 | 4.5 | 5.2 | 5.3 | 5.0 | 0.43 0.50 | 0.51 |
| True 100 | 7.2 | 7.9 | 8.1 | 7.8 | 0.67 0.69 | 0.75 |
| True Menthol 100 | 7.4 | 7.6 | 8.2 | 7.4 | 0.68 0.69 | 0.73 |

^aIncreased tar (18.1 to 20.6 mg), nicotine (1.48 to 1.73 mg), and CO (20.7 to 21.7 mg) deliveries were observed in samples of September and November, 1983 manufacturer.

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TABLE VII
BROWN & WILLIAMSON

| <u>Brand</u> | <u>Tar, mg/cigt.</u> | | | <u>Nicotine, mg/cigt.</u> | | |
|-------------------------|----------------------|-----------|------------|---------------------------|-----------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Belair 85 | 9.7 | 9.8 | 10.0 | 0.79 | 0.79 | 0.74 |
| Belair 100 | 8.5 | 9.2 | 8.0 | 0.68 | 0.72 | 0.61 |
| Kool 70 | 21.8 | 20.2 | 20.2 | 1.37 | 1.44 | 1.23 |
| Kool 80 (Box) | 16.5 | 16.1 | 15.9 | 1.17 | 1.20 | 1.08 |
| Kool 85 | 16.6 | 16.0 | 16.3 | 1.14 | 1.14 | 1.04 |
| Kool 100 | 14.3 | 13.7 | 14.1 | 0.98 | 0.97 | 0.88 |
| Kool Lights 85 | 8.6 | 8.9 | 8.5 | 0.69 | 0.70 | 0.65 |
| Kool Lights 100 | 9.4 | 9.5 | 9.0 | 0.79 | 0.79 | 0.70 |
| Kool Milds 85 | 10.6 | 10.5 | 10.2 | 0.79 | 0.78 | 0.73 |
| Kool Milds 100 | 11.4 | N.A. | 11.2 | 0.90 | N.A. | 0.82 |
| Raleigh 85 (NF) | 26.6 | 22.3 | 24.6 | 1.59 | 1.40 | 1.38 |
| Raleigh 85 | 15.5 | 14.3 | 14.9 | 1.00 | 0.98 | 0.89 |
| Raleigh 100 | 16.5 | 16.1 | 16.0 | 1.17 | 1.14 | 1.04 |
| Raleigh Lights 85 | 10.8 | 10.5 | 10.4 | 0.85 | 0.83 | 0.76 |
| Raleigh Lights 100 | 8.9 | 9.4 | 8.9 | 0.76 | 0.83 | 0.69 |
| Richland 85 | 16.1 | N.A. | 15.9 | 1.15 | N.A. | 1.05 |
| Richland Menthol 85 | 16.3 | N.A. | 15.3 | 1.11 | N.A. | 0.98 |
| Viceroy 85 | 17.1 | 16.0 | 16.2 | 1.06 | 1.04 | 0.94 |
| Viceroy 100 | 14.8 | 14.0 | 14.3 | 1.06 | 0.99 | 0.94 |
| Viceroy Rich Lights 85 | 9.9 | 10.0 | 9.9 | 0.80 | 0.82 | 0.74 |
| Viceroy Rich Lights 100 | 10.9 | 11.1 | 10.5 | 0.89 | 0.87 | 0.78 |

N.A. = Not available.

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TABLE VIII
AMERICAN BRANDS

| Brand | Tar, mg/cigt. | | | Nicotine, mg/cigt. | | |
|-------------------------------|---------------|-------------------|------|--------------------|-------------------|------|
| | TITL | PM | FTC | TITL | PM | FTC |
| Bull Durham 85 | 28.1 | 29.2 | 27.7 | 1.93 | 2.11 | 1.83 |
| Carlton 85 | 1.0 | 1.1 | 1.3 | 0.14 | 0.17 | 0.11 |
| Carlton 85 (Box) | <0.5 | 0.00 | * | <0.02 | 0.00 | * |
| Carlton Menthol 85 | 0.5 | 1.0 | 0.8 | 0.10 | 0.13 | 0.07 |
| Carlton 100 | 4.4 | 5.2 | 4.6 | 0.44 | 0.46 | 0.40 |
| Carlton 100 (Box) | 0.3 | N.A. | 0.6 | 0.07 | N.A. | 0.05 |
| Carlton Menthol 100 | 4.8 | 5.3 | 4.7 | 0.47 | 0.49 | 0.41 |
| Carlton Menthol 100 (Box) | 0.1 | N.A. | * | 0.05 | N.A. | * |
| Carlton 120 | 6.8 | 7.8 | 6.8 | 0.66 | 0.68 | 0.59 |
| Carlton Menthol 120 | 6.6 | 7.3 | 7.1 | 0.66 | 0.68 | 0.62 |
| Half & Half 85 | 17.7 | 17.5 | 17.8 | 1.35 | 1.42 | 1.28 |
| Herbert Tareyton 85 | 24.8 | 25.3 | 23.9 | 1.63 | 1.71 | 1.50 |
| Iceberg 100 | 3.1 | 3.8 | 3.5 | 0.32 | 0.37 | 0.31 |
| Lucky Strike 70 (NF) | 25.1 | 23.4 | 23.3 | 1.52 | 1.61 | 1.37 |
| Lucky Strike Low Tar 85 | 11.2 | 11.0 | 10.5 | 0.87 | 0.88 | 0.80 |
| Lucky Strike Low Tar 85 (Box) | 10.8 | 11.3 | 10.5 | 0.86 | 0.92 | 0.77 |
| Lucky Strike Low Tar 100 | 10.6 | N.A. | 10.9 | 0.91 | N.A. | 0.86 |
| Montclair 85 | 15.2 | 15.4 | 14.7 | 1.08 | 1.14 | 0.98 |
| Pall Mall 85 (NF) | 24.4 | 22.2 | 23.1 | 1.54 | 1.52 | 1.34 |
| Pall Mall 85 | 17.3 | 16.6 | 16.7 | 1.21 | 1.26 | 1.11 |
| Pall Mall 100 | 16.0 | 15.6 | 15.4 | 1.22 | 1.24 | 1.09 |
| Pall Mall Extra Light 85 | 6.3 | 7.1 | 7.0 | 0.60 | 0.70 | 0.59 |
| Pall Mall Lights 100 | 9.5 | 10.6 | 9.5 | 0.82 | 0.90 | 0.75 |
| Pall Mall Light Menthol 100 | 12.9 | 12.7 | 12.4 | 1.08 | 1.12 | 0.97 |
| Silva Thins 100 | 11.0 | 11.1 | 10.9 | 0.96 | 1.00 | 0.88 |
| Silva Thins Menthol 100 | 10.7 | 11.0 | 10.7 | 0.98 | 1.00 | 0.89 |
| Tall 120 | 20.3 | 20.8 | 19.8 | 1.63 | 1.68 | 1.49 |
| Tall Menthol 120 | 17.9 | 20.0 ^a | 16.7 | 1.47 | 1.66 ^a | 1.29 |
| Tareyton 85 | 14.0 | 12.5 | 13.1 | 0.98 | 0.94 | 0.86 |
| Tareyton 100 | 13.4 | 12.9 | 13.5 | 1.00 | 0.99 | 0.93 |
| Tareyton Lights 85 | 4.6 | 5.3 | 4.4 | 0.41 | 0.46 | 0.36 |
| Tareyton Long Lights 100 | 7.3 | 7.7 | 7.5 | 0.66 | 0.70 | 0.62 |

*Below the sensitivity of the method.

N.A. = Not available

^aA decrease in filter ventilation (38 to 31%) in September, 1983, resulted in increased tar (17.6 to 20.0 mg), nicotine (1.60 to 1.70 mg), and CO (16.9 to 20.6 mg) deliveries.

PM3001060417

TABLE IX
LIGGETT GROUP

| <u>Brand</u> | <u>Tar, mg/cigt.</u> | | | <u>Nicotine, mg/cigt.</u> | | |
|-----------------------------------|----------------------|-------------------|------------|---------------------------|-------------------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Chesterfield 70 (NF) | 19.2 | 19.1 | 18.9 | 1.30 | 1.32 | 1.22 |
| Chesterfield 85 (NF) | 23.6 | 20.2 ^a | 22.2 | 1.70 | 1.62 | 1.52 |
| Dorado 85 | 13.2 | N.A. | 12.6 | 1.00 | N.A. | 0.90 |
| Eve Lights 120 (Box) | 14.5 | 14.7 | 14.1 | 1.17 | 1.27 | 1.08 |
| Eve Lights Menthol 120 (Box) | 14.4 | 15.3 | 13.9 | 1.18 | 1.31 | 1.06 |
| Eve Slim Lights 100 (Box) | 11.8 | 11.5 | 12.0 | 1.01 | 0.99 | 0.93 |
| Eve Slim Lights Menthol 100 (Box) | 12.2 | 11.9 | 12.0 | 1.02 | 0.98 | 0.94 |
| L & M 80 (Box) | 13.8 | 12.8 | 13.4 | 1.03 | 1.02 | 0.92 |
| L & M 85 | 13.5 | 13.3 | 13.1 | 1.01 | 1.02 | 0.91 |
| L & M 100 | 13.8 | 12.5 ^b | 13.6 | 1.06 | 1.01 | 0.98 |
| L & M Flavor Lights 85 | 8.1 | N.A. | 8.0 | 0.80 | N.A. | 0.74 |
| L & M Flavor Lights 100 | 8.2 | N.A. | 8.5 | 0.84 | N.A. | 0.83 |
| Lark 85 | 14.2 | 13.1 | 13.9 | 1.02 | 1.01 | 0.92 |
| Lark 100 | 15.3 | 14.2 | 14.9 | 1.14 | 1.15 | 0.99 |
| Lark Lights 85 | 13.3 | 12.6 | 12.8 | 0.99 | 1.01 | 0.89 |
| Lark Lights 100 | 13.9 | 13.2 | 13.3 | 1.09 | 1.11 | 0.97 |
| Picayune 70 (NF) | 17.6 | 22.7 ^c | 15.9 | 1.26 | 1.55 ^c | 1.00 |
| St. Moritz 100 | 14.3 | 14.1 | 13.7 | 1.17 | 1.20 | 1.05 |
| St. Moritz Menthol 100 | 14.3 | 13.8 | 14.3 | 1.16 | 1.16 | 1.07 |

N.A. = Not available

^aA change to a more porous cigarette paper (14 to 7 sec.) in November, 1983, resulted in decreased tar (23.0 to 20.2 mg) and CO (15.4 to 12.4 mg) deliveries.

^bA change to a more porous cigarette paper (13 to 6 sec.) in November, 1983, correlated with lower tar (13.2 to 12.5 mg) and CO (14.7 to 13.0 mg) deliveries.

^cSamples received for testing in January, 1982, exhibited significantly different tar (16.7 to 22.7 mg) and nicotine (1.27 to 1.57 mg) deliveries corresponding with paper porosities of 17 to 43 sec., respectively.

PM3001060418

TABLE X
PHILIP MORRIS

| <u>Brand</u> | <u>CO, mg/cigt.</u> | | |
|--|---------------------|-----------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Alpine 85 | 14.6 | 14.5 | 14.2 |
| Benson & Hedges 70 (Box) | 1.8 | 1.4 | 1.5 |
| Benson & Hedges 85 (Box) | 12.0 | 11.8 | 11.5 |
| Benson & Hedges 100 | 16.3 | 16.1 | 14.9 |
| Benson & Hedges Menthol 100 | 16.0 | 17.0 | 15.1 |
| Benson & Hedges 100 (Box) | 15.9 | 15.8 | 14.7 |
| Benson & Hedges Menthol 100 (Box) | 16.4 | 16.5 | 14.5 |
| B & H DeLuxe Ultra Lights 100 (Box) | 6.2 | 6.9 | 5.2 |
| B & H DeLuxe Ultra Lights Men. 100 (Box) | 6.1 | 6.4 | 5.3 |
| Benson & Hedges Lights 100 | 12.6 | 11.4 | 11.2 |
| Benson & Hedges Lights Menthol 100 | 11.4 | 12.8 | 10.1 |
| B & H Multifilter 85 | 12.2 | 11.1 | 10.5 |
| B & H Multifilter Menthol 85 | 11.5 | 11.8 | 10.2 |
| Cambridge 85 | 1.4 | 1.6 | 1.0 |
| Cambridge 85 (Box) | 0.0 | <0.4 | * |
| Cambridge 100 | 6.2 | 6.1 | 5.5 |
| English Ovals 70 (Box) | 12.7 | 11.7 | 11.0 |
| English Ovals 85 (Box) | 15.4 | 13.4 | 14.0 |
| Galaxy 85 | 14.8 | 15.1 | 13.3 |
| Marlboro 80 (Box) | 15.5 | 14.3 | 14.0 |
| Marlboro 85 | 15.6 | 15.0 | 14.5 |
| Marlboro Menthol 85 | 15.0 | 14.9 | 14.1 |
| Marlboro 100 | 16.4 | 15.2 | 15.0 |
| Marlboro 100 (Box) | 16.0 | 15.4 | 14.4 |
| Marlboro Lights 85 | 11.9 | 11.5 | 10.8 |
| Marlboro Lights 85 (Box) | 11.9 | 11.8 | 10.8 |
| Marlboro Lights 100 | 12.7 | 12.1 | 11.1 |
| Merit 85 | 10.2 | 9.9 | 9.1 |
| Merit Menthol 85 | 9.5 | 9.2 | 9.5 |
| Merit 100 | 12.0 | 11.0 | 11.6 |
| Merit Menthol 100 | 11.4 | 10.8 | 10.6 |
| Merit Ultra Lights 85 | 4.9 | 4.7 | 5.3 |
| Merit Ultra Lights Menthol 85 | 4.5 | 4.4 | 5.0 |
| Merit Ultra Lights 100 | 5.9 | 5.6 | 6.4 |
| Merit Ultra Lights Menthol 100 | 5.4 | 5.0 | 4.4 |
| Parliament Lights 80 (Box) | 9.5 | 9.1 | 9.2 |
| Parliament Lights 85 | 9.3 | 9.4 | 8.5 |
| Parliament Lights 100 | 11.8 | 11.8 | 10.7 |
| Philip Morris 70 | 13.6 | 13.0 | 11.9 |
| Philip Morris Commander 85 | 16.2 | 15.2 | 14.3 |
| Philip Morris International 100 (Box) | 16.9 | 16.0 | 15.6 |
| Philip Morris International Men. 100 (Box) | 17.9 | 16.2 | 16.4 |
| Players 70 (Box) | 16.0 | 16.7 | 14.7 |
| Players 85 (Box) | 11.5 | 11.0 | 11.1 |
| Players Menthol 85 (Box) | 11.4 | 11.6 | 10.8 |
| Players 100 (Box) | 13.7 | 12.8 | 12.0 |
| Players Menthol 100 (Box) | 12.9 | 12.2 | 11.4 |
| Saratoga 120 (Box) | 14.7 | 13.9 | 13.2 |
| Saratoga Menthol 120 (Box) | 14.7 | 15.2 | 13.5 |
| Virginia Slims 100 | 13.8 | 12.7 | 12.3 |
| Virginia Slims Menthol 100 | 13.9 | 13.4 | 12.9 |
| Virginia Slims Lights 100 (Box) | 8.5 | 9.2 | 7.4 |
| Virginia Slims Lights Menthol 100 (Box) | 8.7 | 8.6 | 7.5 |

*Below the sensitivity of the method.

PM3001060419

TABLE XI
R. J. REYNOLDS

| <u>Brand</u> | <u>CO, mg/cigt.</u> | | |
|----------------------------------|---------------------|------------------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Bright 85 | 7.8 | 7.6 | 7.1 |
| Bright 100 | 8.1 | 7.5 | 7.4 |
| Camel 70 | 14.9 | 13.0 | 12.9 |
| Camel 80 (Box) | 15.2 | N.A. | 14.6 |
| Camel 85 | 15.1 | 14.5 | 14.3 |
| Camel Lights 80 (Box) | 9.4 | 9.0 | 8.4 |
| Camel Lights 85 | 11.7 | 10.3 | 10.1 |
| Camel Lights 100 | 15.4 | 14.8 | 13.7 |
| Century 85 | 17.3 | N.A. | 15.9 |
| Century Lights 85 | 11.3 | N.A. | 10.8 |
| Doral II 85 | 3.7 | 3.2 | 3.0 |
| Doral II Menthol 85 | 3.8 | 3.6 | 3.1 |
| More Lights 100 (Box) | 9.0 | 9.1 | 7.7 |
| More Lights Menthol 100 (Box) | 9.2 | 8.2 | 8.4 |
| More 120 | 21.6 | 21.6 | 20.4 |
| More Menthol 120 | 20.6 | 20.4 | 18.8 |
| Now 80 (Box) | 0.1 | <0.4 | * |
| Now 85 | 1.9 | 1.9 | 1.5 |
| Now Menthol 85 | 1.7 | 1.5 | 1.2 |
| Now 100 | 2.6 | 2.7 | 2.4 |
| Now 100 (Box) | 0.5 | N.A. | * |
| Now Menthol 100 | 1.6 | 1.6 | 1.5 |
| Salem 85 | 18.7 | 17.3 | 17.6 |
| Salem 100 | 17.0 | 16.0 | 14.9 |
| Salem Lights 85 | 12.1 | 11.0 | 10.7 |
| Salem Lights 100 | 12.3 | 10.9 | 10.8 |
| Salem Slim Lights 100 (Box) | 9.8 | 8.7 | 8.7 |
| Salem Ultra Lights 85 | 7.1 | 7.2 | 6.4 |
| Salem Ultra Lights 100 | 6.9 | 6.3 | 5.9 |
| Vantage 85 | 13.1 | 12.0 | 11.9 |
| Vantage Menthol 85 | 13.3 | 12.0 | 11.9 |
| Vantage 100 | 11.3 | 10.4 | 10.5 |
| Vantage Menthol 100 | 11.3 | 11.0 | 10.6 |
| Vantage Ultra Lights 85 | 6.8 | 6.5 | 5.9 |
| Vantage Ultra Lights Menthol 85 | 6.6 | 5.8 | 5.8 |
| Vantage Ultra Lights 100 | 6.3 | 6.3 | 5.7 |
| Vantage Ultra Lights Menthol 100 | 7.3 | 6.0 ^a | 6.8 |
| Winston 80 (Box) | 15.6 | 14.3 | 14.5 |
| Winston 85 | 15.5 | 15.2 | 14.7 |
| Winston 100 | 17.3 | 16.3 | 15.8 |
| Winston Lights 85 | 10.3 | 9.3 | 9.3 |
| Winston Lights 100 | 14.5 | 14.4 | 13.1 |
| Winston Ultra Lights 85 | 7.2 | 6.5 | 6.5 |
| Winston Ultra Lights 100 | 7.1 | 7.1 | 6.6 |
| Winston International 100 (Box) | 14.4 | 14.3 | 13.5 |

*Below the sensitivity of the method.

N.A. = Not available

^aThe change to a more porous cigarette paper (24 to 16 sec.) in November, 1983, resulted in decreased CO (6.9 to 6.0 mg) delivery.

PM3001060420

TABLE XII

LORILLARD

| <u>Brand</u> | <u>CO, mg/cigt.</u> | | |
|---------------------------------|---------------------|-------------------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Kent Golden Lights 85 | 9.1 | 9.3 | 9.0 |
| Kent Golden Lights Menthol 85 | 7.5 | 8.1 | 7.9 |
| Kent Golden Lights 100 | 9.2 | 9.4 | 9.6 |
| Kent Golden Lights Menthol 100 | 8.7 | 8.0 | 9.2 |
| Kent 80 (Box) | 12.6 | 12.1 | 11.5 |
| Kent 85 | 11.4 | 12.6 | 10.4 |
| Kent 100 | 11.9 | 12.9 | 10.7 |
| Kent Menthol 100 | 14.5 | 14.2 | 13.5 |
| Kent III 85 | 2.9 | 3.0 | 2.2 |
| Kent III 100 | 5.6 | 5.5 | 4.8 |
| Max 120 | 18.8 | 18.2 | 17.2 |
| Max Menthol 120 | 18.3 | 18.1 | 17.1 |
| Newport Menthol 80 (Box) | 17.0 | 16.1 | 15.4 |
| Newport Menthol 85 | 18.6 | 17.6 | 17.2 |
| Newport Menthol 100 | 20.5 | 19.0 | 19.6 |
| Newport Lights Menthol 80 (Box) | 9.5 | 9.2 | 9.3 |
| Newport Lights Menthol 85 | 8.5 | 8.7 | 8.3 |
| Newport Lights Menthol 100 | 9.3 | 7.2 | 9.6 |
| Newport Red 80 (Box) | 13.7 | 13.8 | 12.5 |
| Newport Red 85 | 16.3 | 15.2 | 15.1 |
| Old Gold 85 | 18.8 | 18.4 | 18.0 |
| Old Gold 100 | 21.4 | 20.7 ^a | 19.6 |
| Old Gold Lights 85 | 10.0 | 10.6 | 10.0 |
| Old Gold Straights 85 (NF) | 18.4 | 17.6 | 16.6 |
| Satin 100 | 11.1 | 10.4 | 10.5 |
| Satin Menthol 100 | 10.8 | 9.5 | 10.0 |
| Spring 100 | 17.8 | 16.6 | 16.3 |
| Triumph 85 | 3.0 | 3.0 | 2.5 |
| Triumph Menthol 85 | 3.0 | 2.9 | 2.4 |
| Triumph 100 | 5.4 | 5.8 | 4.5 |
| Triumph Menthol 100 | 5.0 | 5.0 | 4.2 |
| True 85 | 5.2 5.2 | 5.8 | 4.4 |
| True Menthol 85 | 4.8 5.7 | 5.7 | 4.8 |
| True 100 | 7.6 9.5 | 9.3 | 8.5 |
| True Menthol 100 | 7.4 9.0 | 9.2 | 7.8 |

^aIncreased tar (18.1 to 20.6 mg), nicotine (1.48 to 1.73 mg), and CO (20.7 to 21.7 mg) deliveries were observed in samples of September and November, 1983 manufacturer.

PM3001060421

TABLE XIII
BROWN & WILLIAMSON

| <u>Brand</u> | <u>CO, mg/cigt.</u> | | |
|-------------------------|---------------------|-----------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Belair 85 | 10.1 | 9.7 | 9.5 |
| Belair 100 | 9.0 | 9.0 | 7.5 |
| Kool 70 | 15.1 | 14.0 | 14.0 |
| Kool 80 (Box) | 15.3 | 14.6 | 14.6 |
| Kool 85 | 14.7 | 13.7 | 13.8 |
| Kool 100 | 16.5 | 15.3 | 15.3 |
| Kool Lights 85 | 10.2 | 10.1 | 9.2 |
| Kool Lights 100 | 9.9 | 9.0 | 8.7 |
| Kool Milds 85 | 11.3 | 11.2 | 10.7 |
| Kool Milds 100 | 13.5 | N.A. | 12.1 |
| Raleigh 85 (NF) | 18.4 | 17.1 | 16.5 |
| Raleigh 85 | 17.0 | 16.2 | 16.1 |
| Raleigh 100 | 17.2 | 16.5 | 16.5 |
| Raleigh Lights 85 | 11.3 | 10.8 | 10.1 |
| Raleigh Lights 100 | 10.5 | 11.2 | 9.4 |
| Richland 85 | 13.4 | N.A. | 13.2 |
| Richland Menthol 85 | 14.4 | N.A. | 13.4 |
| Viceroy 85 | 16.7 | 15.4 | 15.7 |
| Viceroy 100 | 17.6 | 16.5 | 16.1 |
| Viceroy Rich Lights 85 | 10.2 | 9.5 | 9.6 |
| Viceroy Rich Lights 100 | 12.4 | 11.6 | 11.3 |

N.A. = Not available.

TABLE XIV
AMERICAN BRANDS

| <u>Brand</u> | <u>CO, mg/cigt.</u> | | |
|-------------------------------|---------------------|-------------------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Bull Durham 85 | 24.2 | 23.2 | 23.0 |
| Carlton 85 | 2.1 | 1.3 | 1.6 |
| Carlton 85 (Box) | 0.0 | <0.4 | * |
| Carlton Menthol 85 | 1.3 | 1.0 | 0.9 |
| Carlton 100 | 6.4 | 6.4 | 5.8 |
| Carlton 100 (Box) | 0.6 | N.A. | * |
| Carlton Menthol 100 | 6.7 | 6.4 | 5.7 |
| Carlton Menthol 100 (Box) | 0.4 | N.A. | * |
| Carlton 120 | 5.9 | 5.0 | 5.1 |
| Carlton Menthol 120 | 5.8 | 5.3 | 5.3 |
| Half & Half 85 | 18.0 | 18.2 | 17.0 |
| Herbert Tareyton 85 | 17.1 | 17.0 | 15.9 |
| Iceberg 100 | 4.7 | 5.4 | 4.2 |
| Lucky Strike 70 (NF) | 17.9 | 15.4 | 16.4 |
| Lucky Strike Low Tar 85 | 11.6 | 10.7 | 9.9 |
| Lucky Strike Low Tar 85 (Box) | 11.3 | 11.3 | 10.3 |
| Lucky Strike Low Tar 100 | 11.0 | N.A. | 10.2 |
| Montclair 85 | 16.4 | 16.0 | 15.2 |
| Pall Mall 85 (NF) | 17.5 | 16.9 | 15.5 |
| Pall Mall 85 | 17.4 | 17.7 | 16.0 |
| Pall Mall 100 | 16.5 | 16.0 | 15.2 |
| Pall Mall Extra Light 85 | 6.9 | 6.9 | 6.7 |
| Pall Mall Lights 100 | 10.1 | 9.9 | 8.9 |
| Pall Mall Light Menthol 100 | 12.6 | 12.0 | 11.4 |
| Silva Thins 100 | 9.7 | 9.7 | 8.5 |
| Silva Thins Menthol 100 | 9.4 | 8.8 | 8.3 |
| Tall 120 | 21.2 | 20.4 | 19.3 |
| Tall Menthol 120 | 19.8 | 19.9 ^a | 17.5 |
| Tareyton 85 | 15.3 | 14.8 | 13.8 |
| Tareyton 100 | 15.9 | 15.2 | 15.1 |
| Tareyton Lights 85 | 5.1 | 4.6 | 4.2 |
| Tareyton Long Lights 100 | 7.8 | 6.9 | 7.0 |

N.A. = Not available

^aA decrease in filter ventilation (38 to 31%) in September, 1983, resulted in increased tar (17.6 to 20.0 mg), nicotine (1.60 to 1.70 mg), and CO (16.9 to 20.6 mg) deliveries.

PM3001060423

TABLE XV
LIGGETT GROUP

| <u>Brand</u> | <u>CO, mg/cigt.</u> | | |
|-----------------------------------|---------------------|-------------------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| Chesterfield 70 (NF) | 12.0 | 11.4 | 11.0 |
| Chesterfield 85 (NF) | 14.3 | 12.4 ^a | 12.6 |
| Dorado 85 | 12.9 | N.A. | 11.8 |
| Eve Lights 120 (Box) | 12.9 | 12.7 | 11.2 |
| Eve Lights Menthol 120 (Box) | 12.6 | 12.6 | 11.2 |
| Eve Slim Lights 100 (Box) | 10.0 | 9.2 | 9.5 |
| Eve Slim Lights Menthol 100 (Box) | 10.1 | 9.3 | 9.5 |
| L & M 80 (Box) | 13.5 | 14.0 | 12.8 |
| L & M 85 | 13.2 | 12.7 | 12.5 |
| L & M 100 | 14.1 | 13.0 ^b | 13.0 |
| L & M Flavor Lights 85 | 7.6 | N.A. | 6.8 |
| L & M Flavor Lights 100 | 6.8 | N.A. | 6.1 |
| Lark 85 | 14.0 | 13.7 | 13.2 |
| Lark 100 | 15.9 | 15.1 | 14.6 |
| Lark Lights 85 | 13.6 | 13.0 | 12.1 |
| Lark Lights 100 | 14.7 | 14.0 | 13.2 |
| Picayune 70 (NF) | 13.8 | 16.9 ^c | 12.5 |
| St. Moritz 100 | 14.1 | 13.2 | 12.8 |
| St. Moritz Menthol 100 | 14.4 | 14.1 | 13.4 |

N.A. = Not available

^aA change to a more porous cigarette paper (14 to 7 sec.) in November, 1983, resulted in decreased tar (23.0 to 20.2 mg) and CO (15.4 to 12.4 mg) deliveries.

^bA change to a more porous cigarette paper (13 to 6 sec.) in November, 1983, correlated with lower tar (13.2 to 12.5 mg) and CO (14.7 to 13.0 mg) deliveries.

^cSamples received for testing in January, 1982, exhibited significantly different tar (16.7 to 22.7 mg) and nicotine (1.27 to 1.57 mg) deliveries corresponding with paper porosities of 17 to 43 sec., respectively.

PM3001060424

TABLE XVI

AVERAGE TAR, NICOTINE AND CO DELIVERIES FOR
MARKET SAMPLES #28 AND PRIOR MARKET SAMPLES

| <u>Market Sample</u> | <u>Tar, mg/cigt.</u> | | | <u>Nicotine, mg/cigt.</u> | | | <u>CO, mg/cigt.</u> | | |
|----------------------|----------------------|-----------|------------|---------------------------|-----------|------------|---------------------|-----------|------------|
| | <u>TITL</u> | <u>PM</u> | <u>FTC</u> | <u>TITL</u> | <u>PM</u> | <u>FTC</u> | <u>TITL</u> | <u>PM</u> | <u>FTC</u> |
| 25 | 11.2 | 11.2 | 11.1 | 0.85 | 0.86 | 0.85 | 11.2 | 11.2 | 11.3 |
| 26 | 11.4 | 11.3 | 11.6 | 0.90 | 0.88 | 0.85 | 11.3 | 11.1 | 11.0 |
| 27 | 11.3 | 11.1 | 11.4 | 0.89 | 0.92 | 0.81 | 11.5 | 11.4 | 10.9 |
| 28 | 11.6 | 11.7 | 11.4 | 0.90 | 0.93 | 0.82 | 11.7 | 11.3 | 10.7 |

PM3001060425

TABLE XVII
BRANDS ADDED TO MARKET SAMPLE #28

PHILIP MORRIS

P.M. International 100 (Box)
P.M. International Men. 100 (Box)
Players 85 (Box)
Players Menthol 85 (Box)
Players 100 (Box)
Players Menthol 100 (Box)

BROWN & WILLIAMSON

Richland 85
Richland Menthol 85

AMERICAN BRANDS

Lucky Strike Low Tar 100

R. J. REYNOLDS

Camel 80 (Box)
Century 85
Century Lights 85
Vantage Menthol 100

LIGGETT GROUP

Dorado 85
Eve Slim Lights 100 (Box)
Eve Slim Lights Menthol 100 (Box)
L & M Flavor Lights 100

BRANDS DELETED FROM MARKET SAMPLE #28

PHILIP MORRIS

Marlboro Menthol 80 (Box)
Northwind 85
Northwind 100

LIGGETT GROUP

Chesterfield 85
Chesterfield 101
Decade 85
Decade Menthol 85
Eve Lights 100
Eve Lights Menthol 100
L & M Long Lights 100
L & M Long Lights Menthol 100
Omni Luxury Lights Menthol 100

LORILLARD

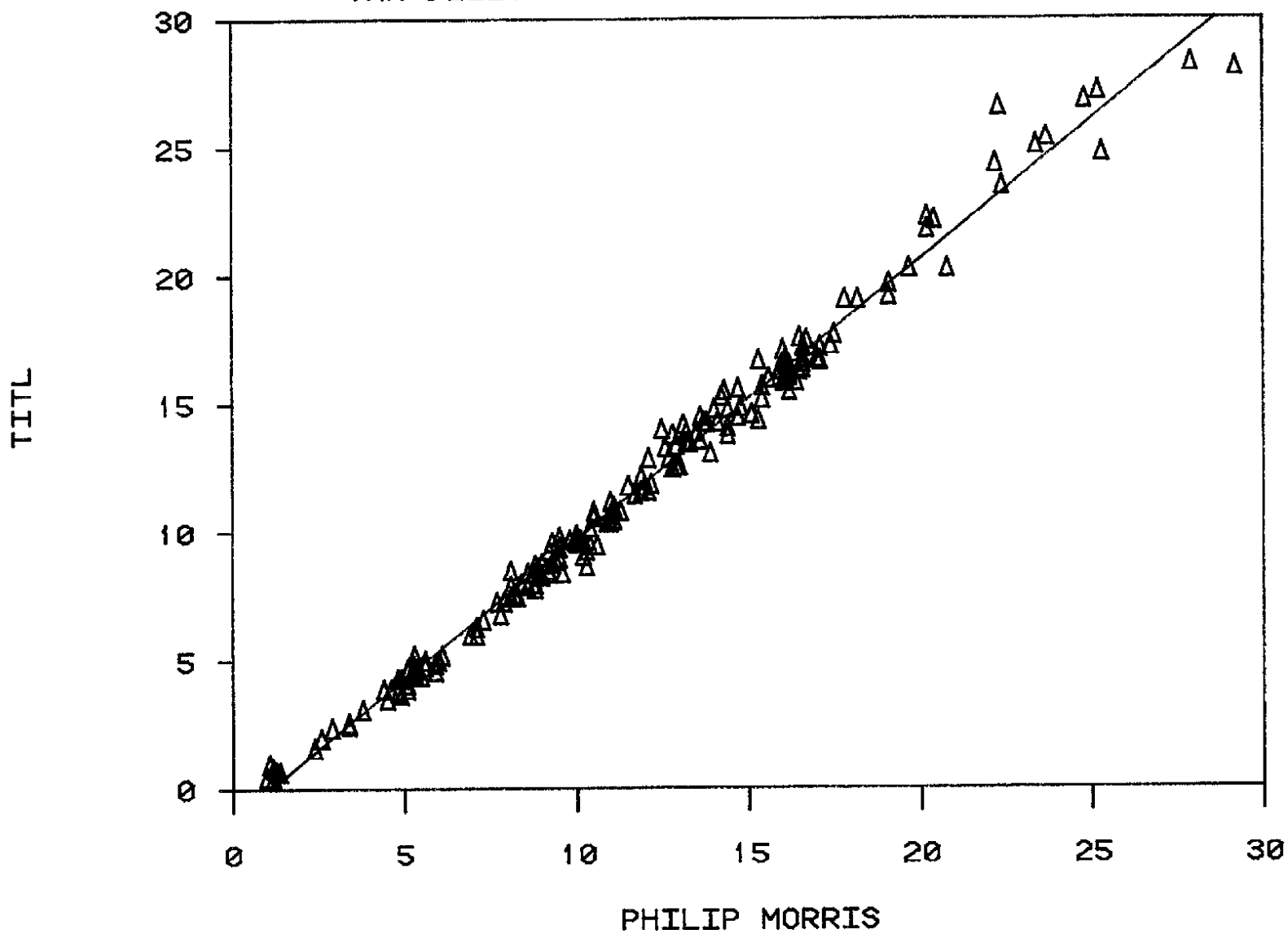
Rebel 85
Rebel 100

AMERICAN BRANDS

Long Johns 120
Long Johns Menthol 120
Lucky 100

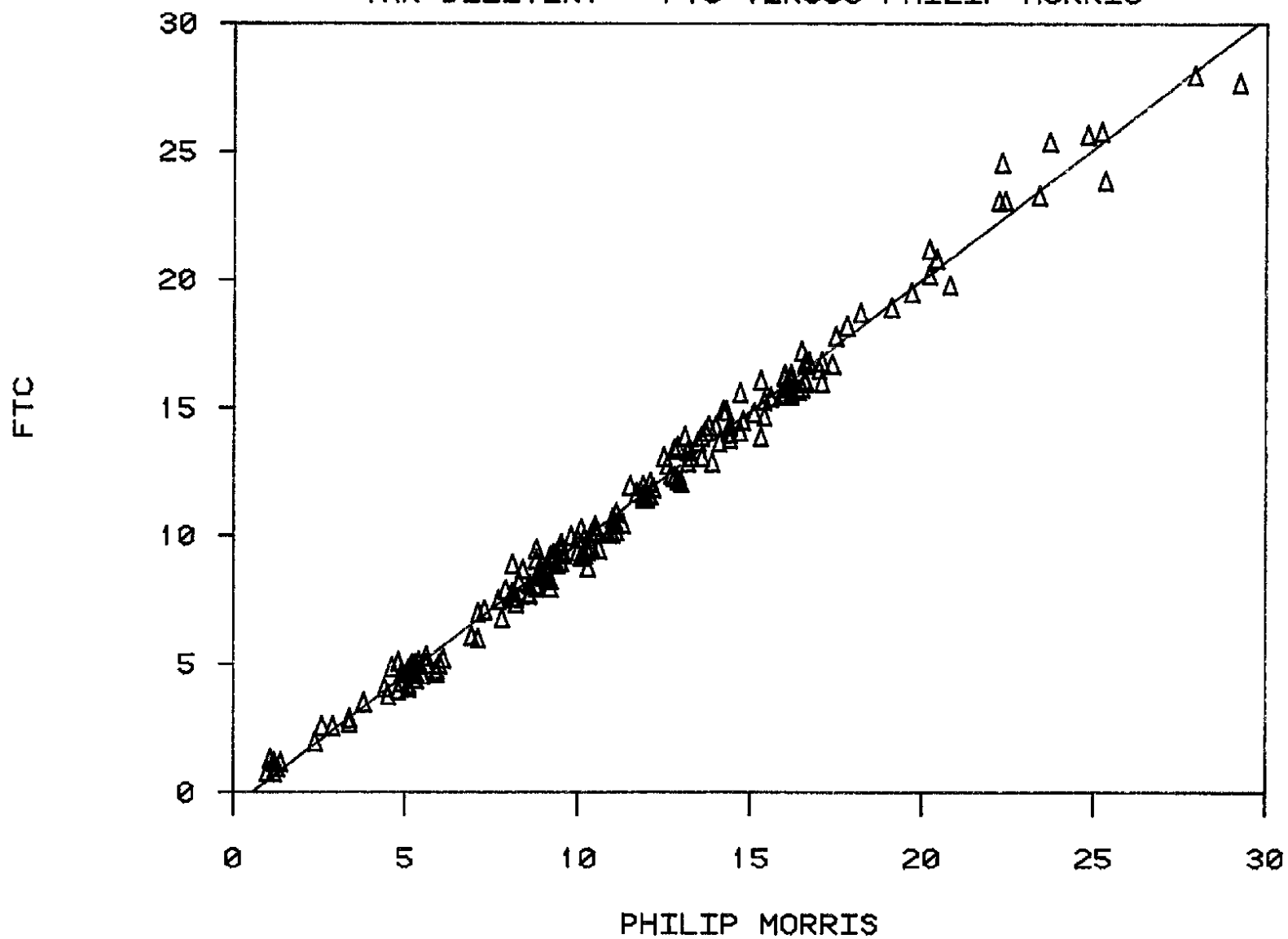
PM3001060426

GRAPH 1
TAR DELIVERY: TITL VERSUS PHILIP MORRIS



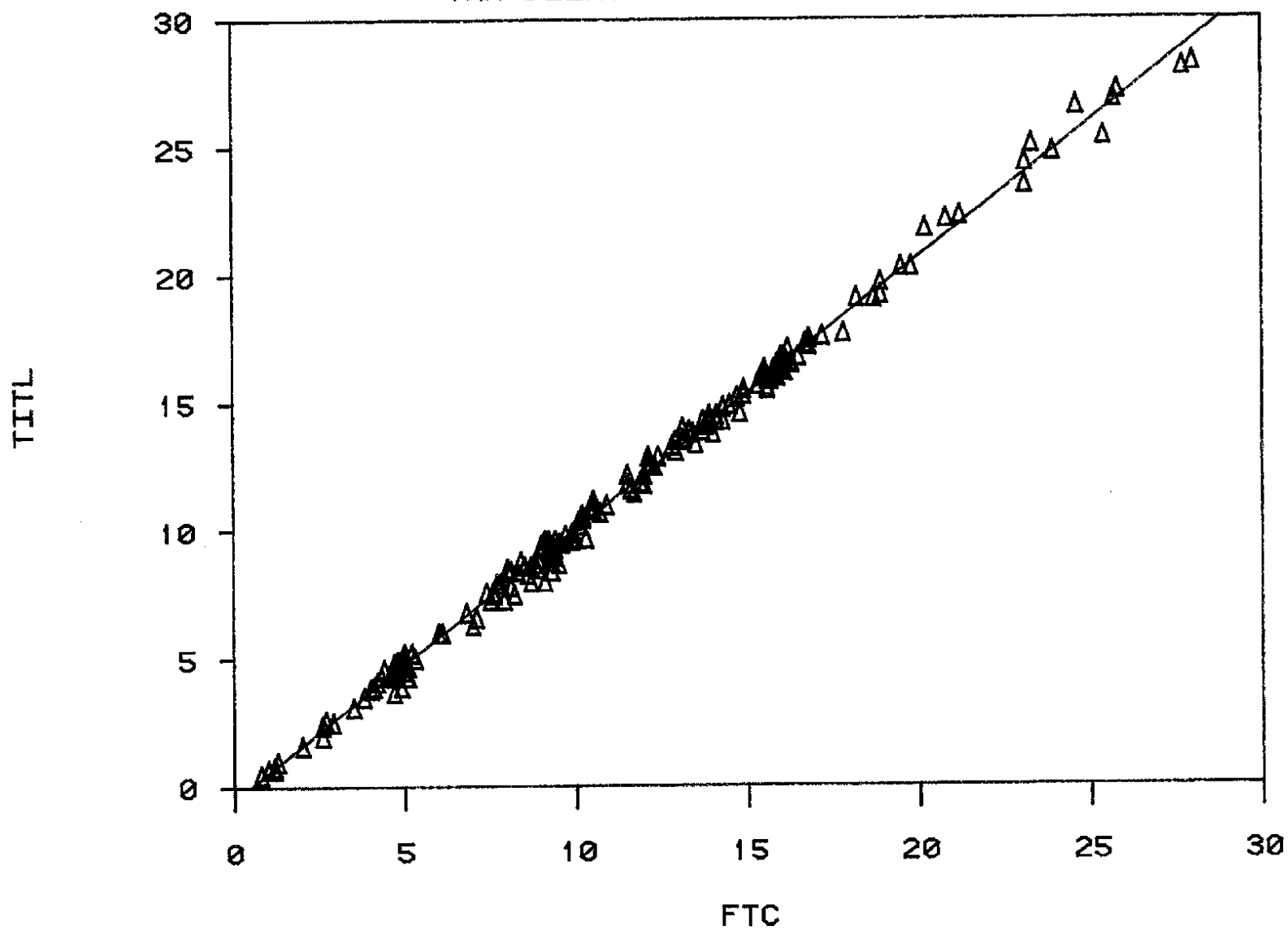
PM3001060427

GRAPH 2
TAR DELIVERY: FTC VERSUS PHILIP MORRIS

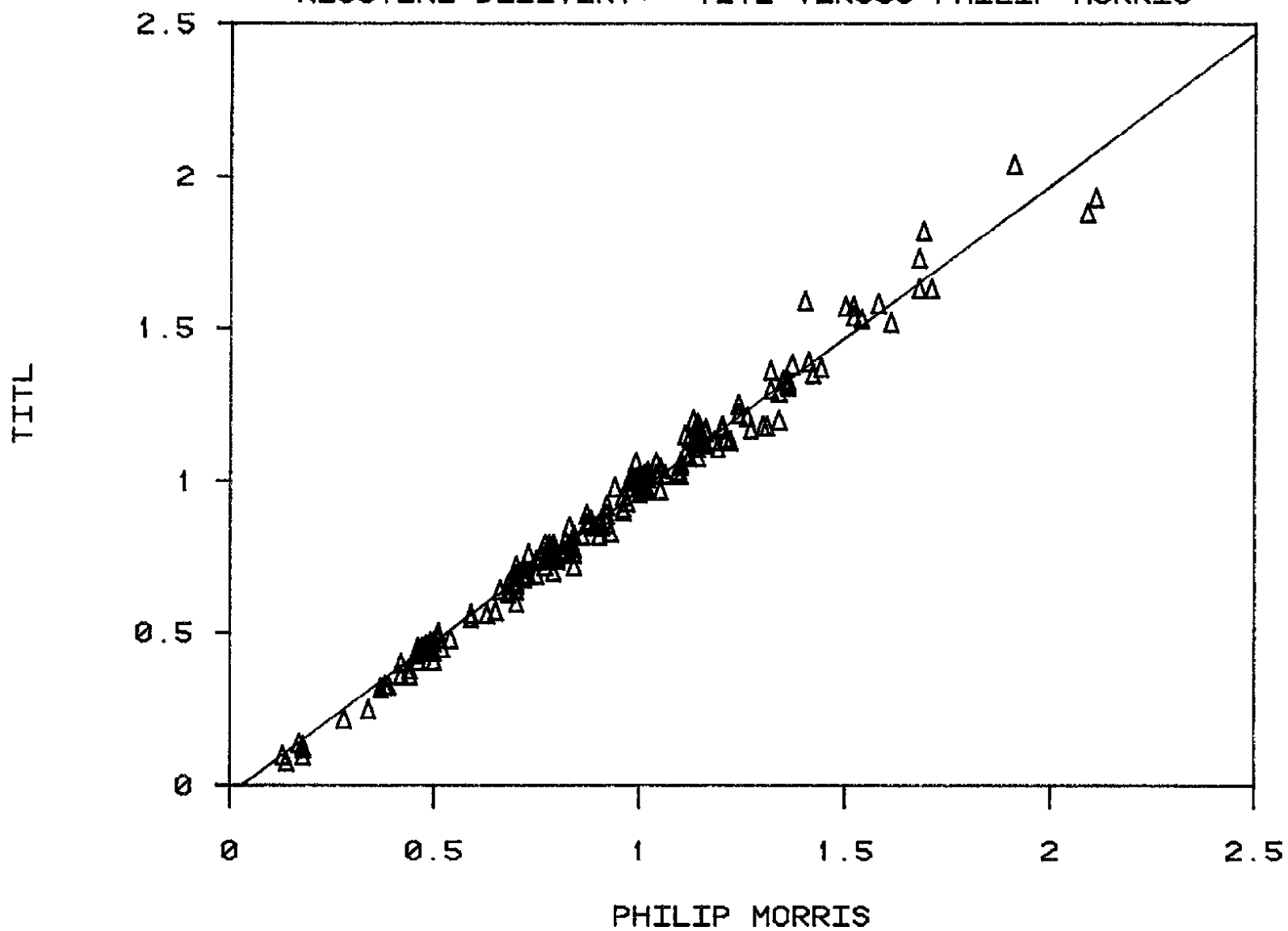


PM3001060428

GRAPH 3
TAR DELIVERY: TITL VERSUS FTC

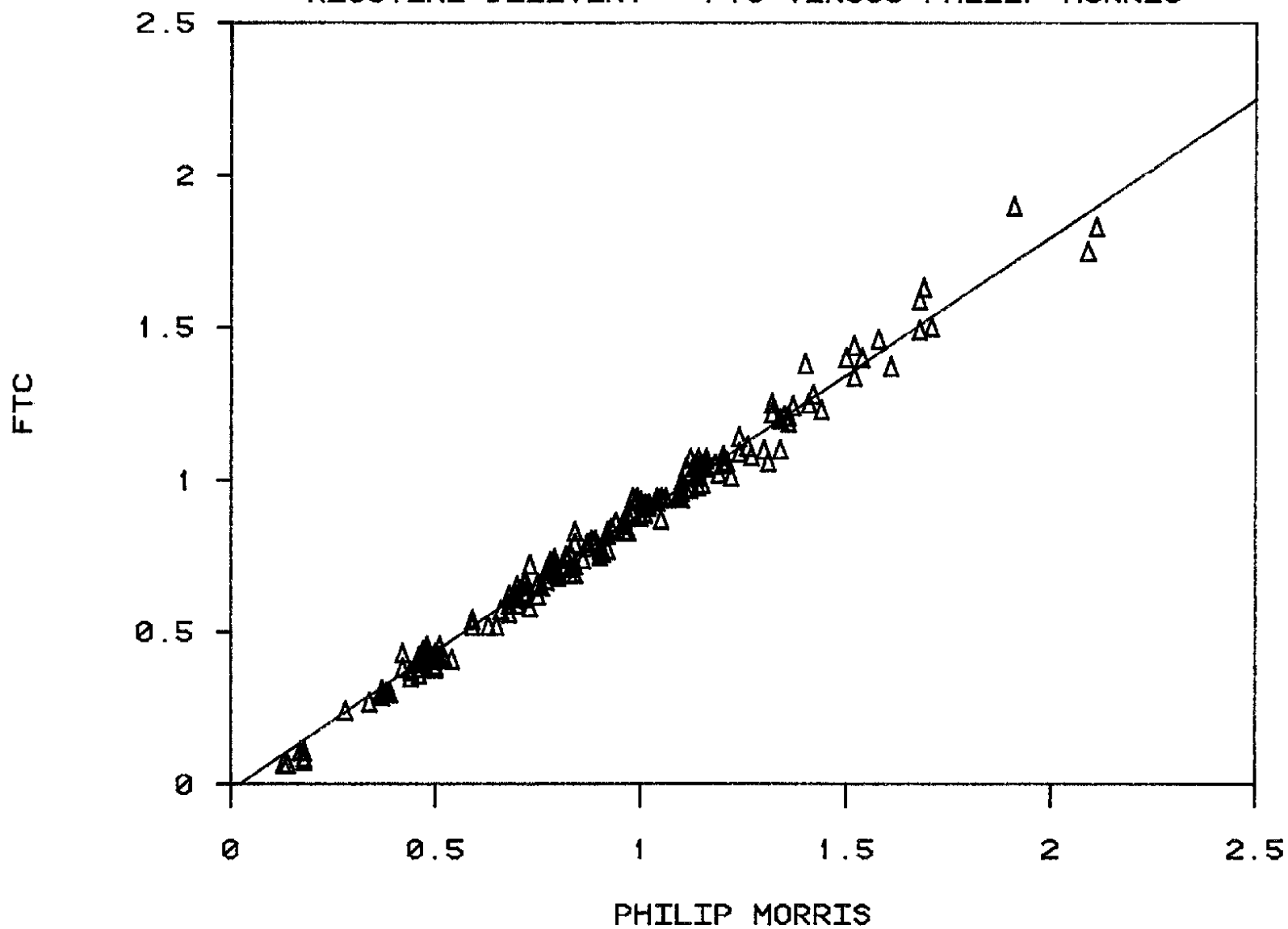


GRAPH 4
NICOTINE DELIVERY: TITL VERSUS PHILIP MORRIS



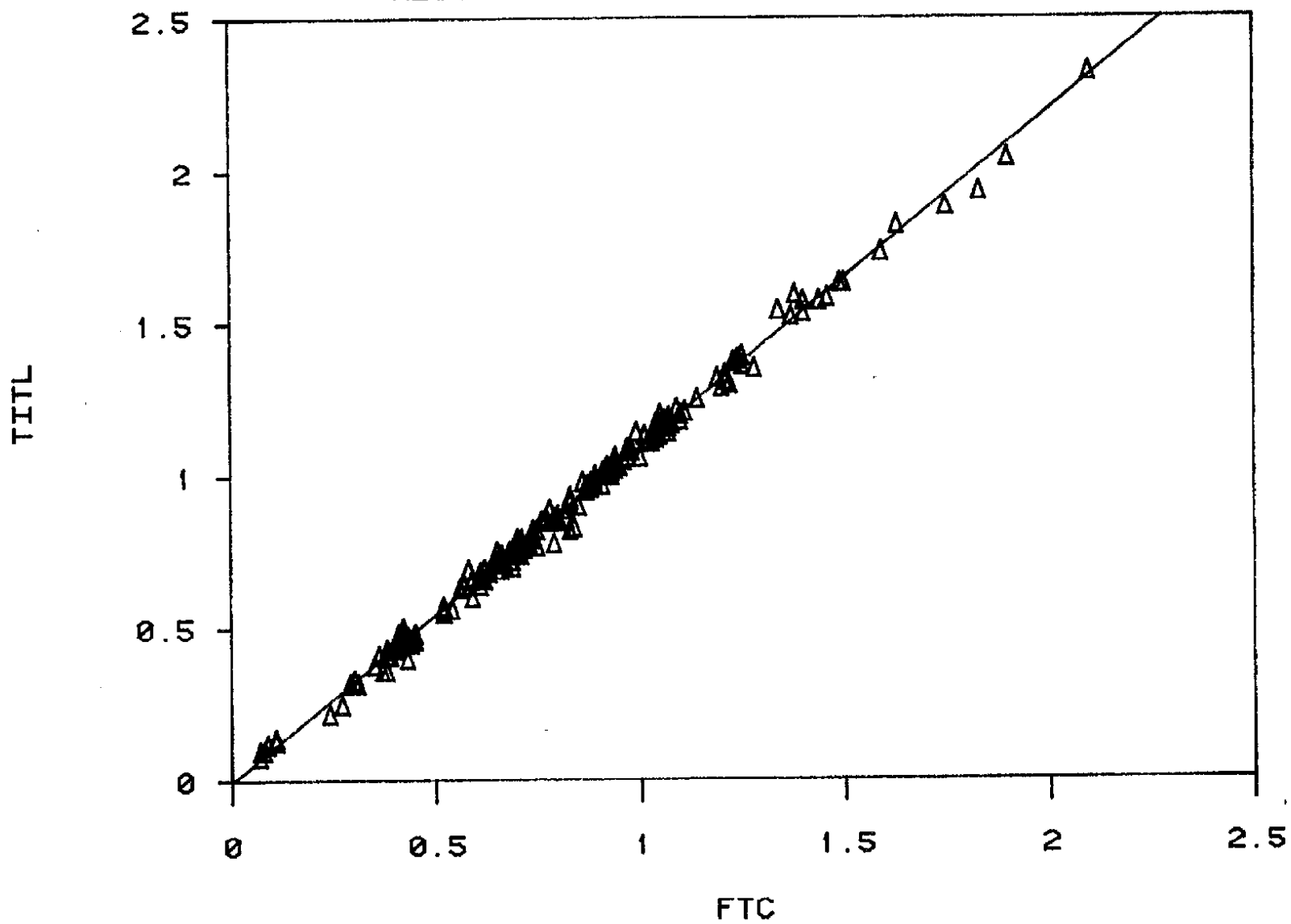
PM3001060430

GRAPH 5
NICOTINE DELIVERY: FTC VERSUS PHILIP MORRIS



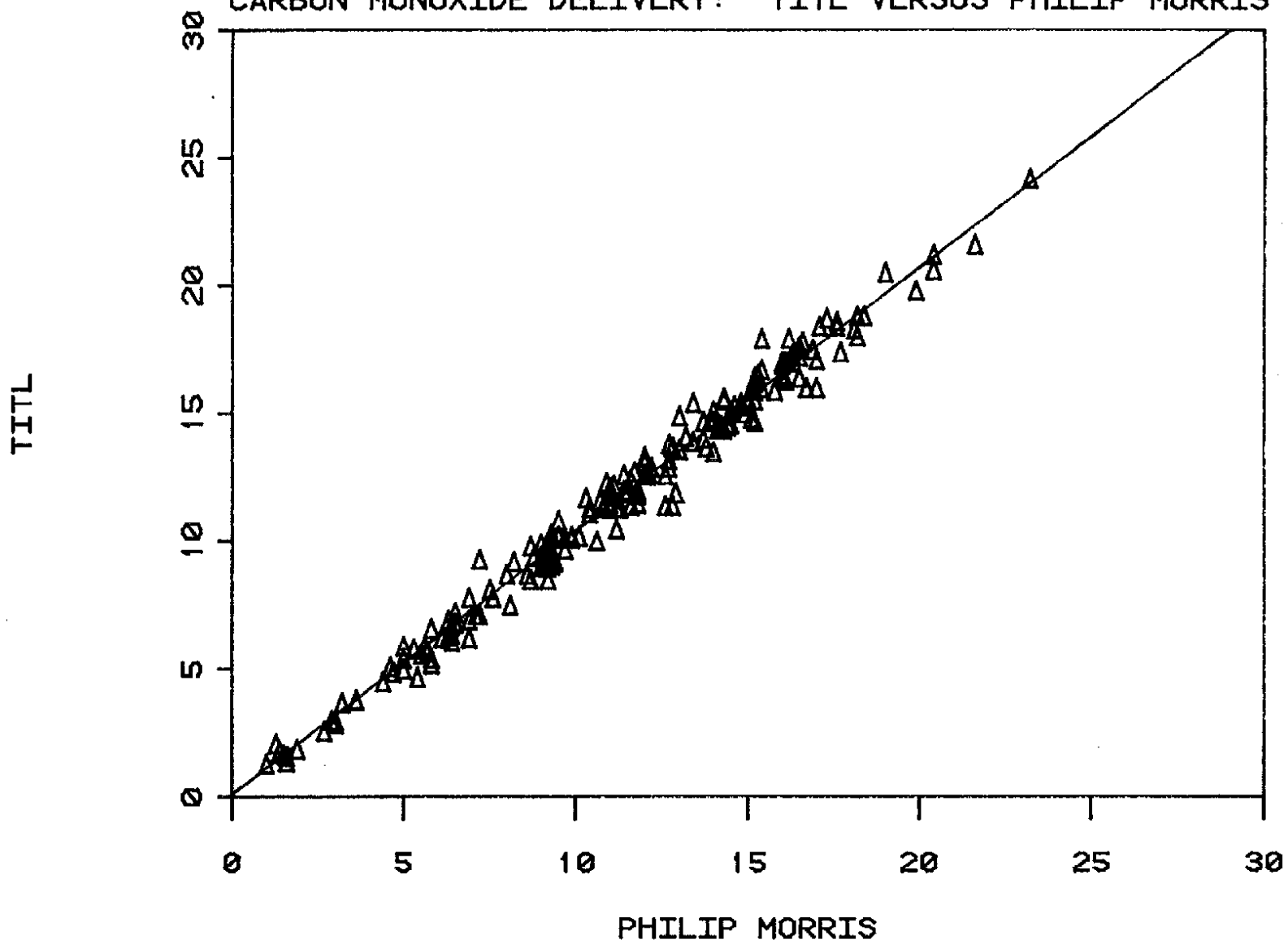
PM3001060431

GRAPH 6
NICOTINE DELIVERY: TITL VERSUS FTC



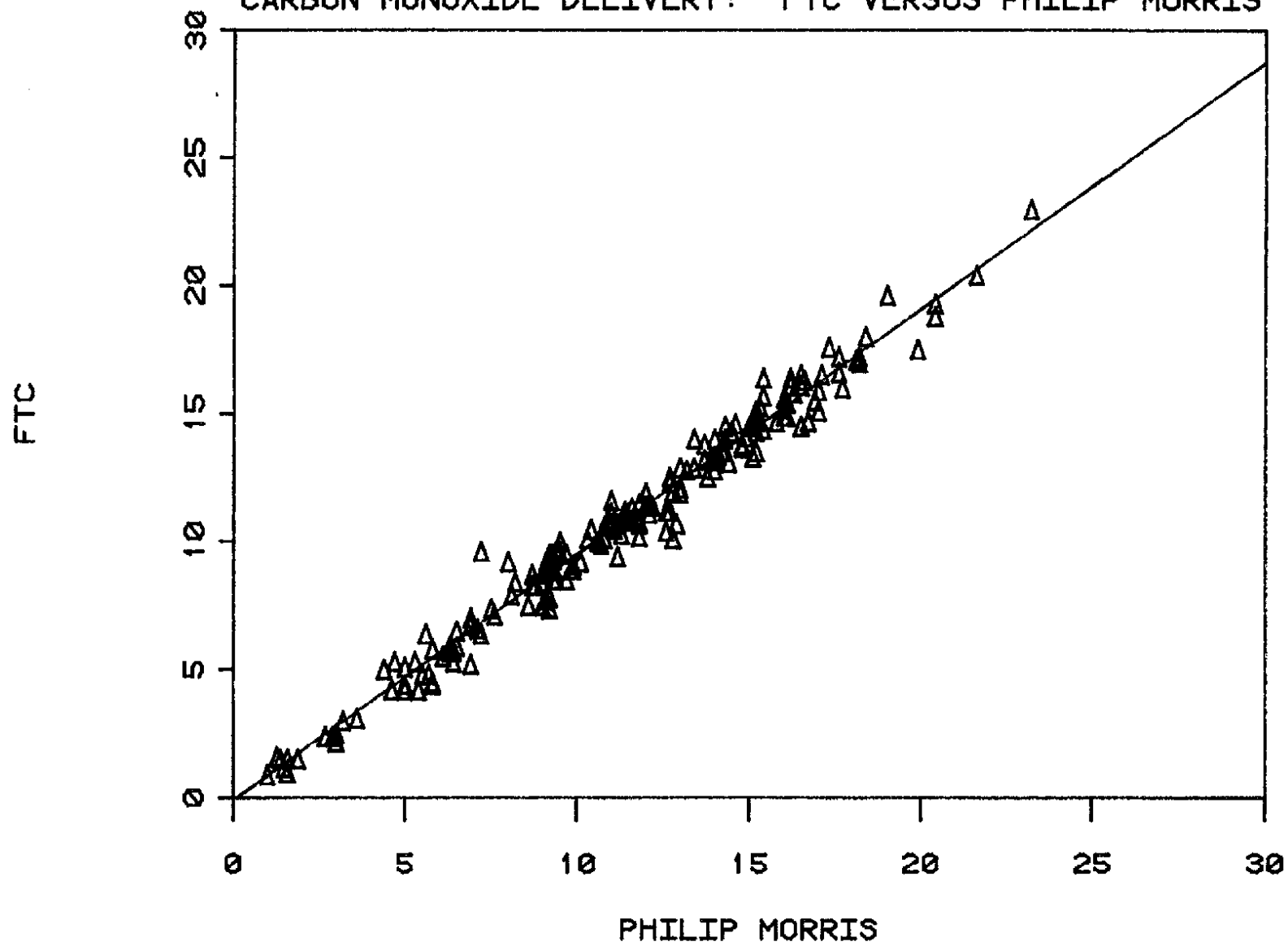
PM3001060432

GRAPH 7
CARBON MONOXIDE DELIVERY: TITL VERSUS PHILIP MORRIS

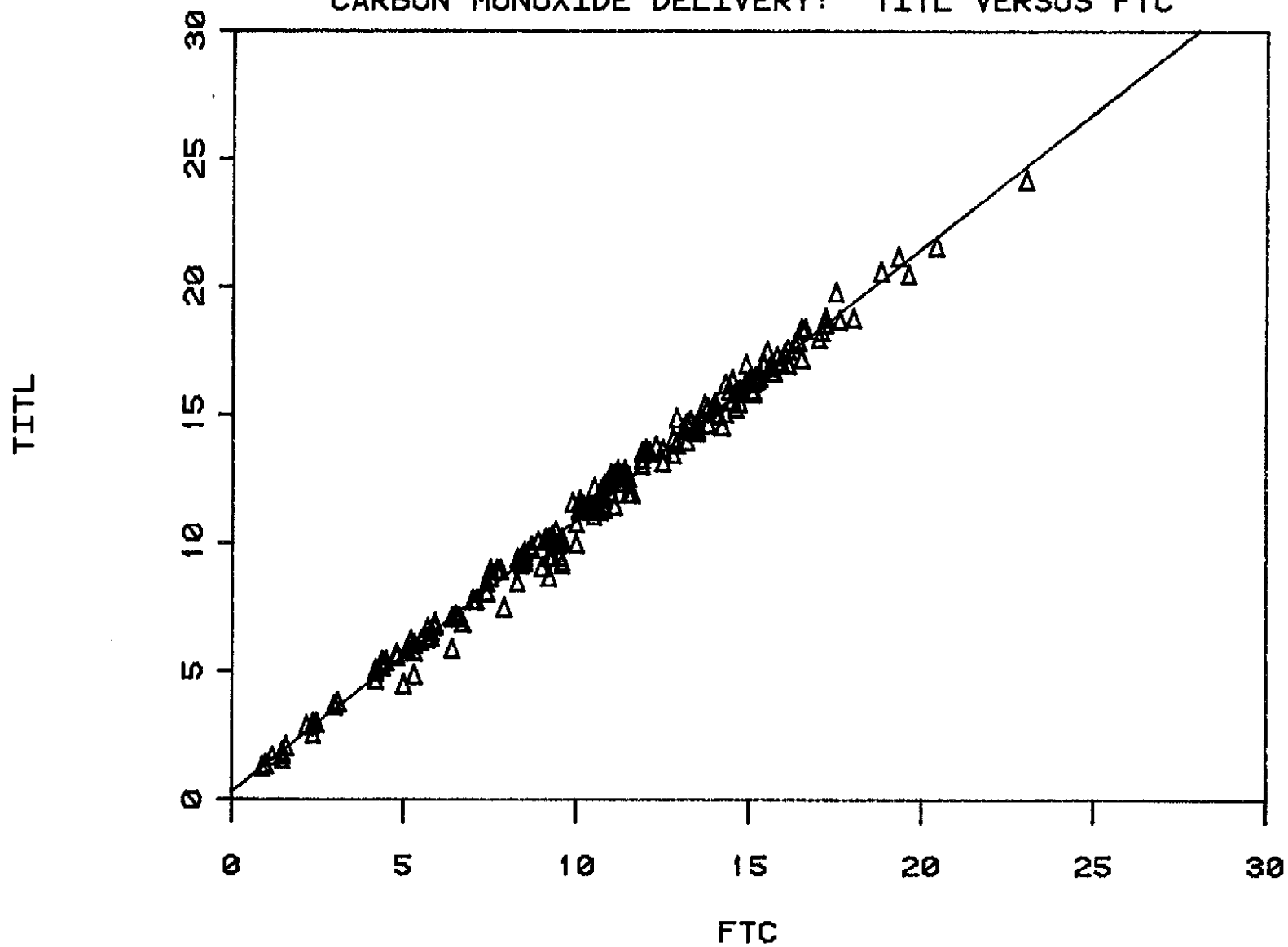


PM3001060433

GRAPH 8
CARBON MONOXIDE DELIVERY: FTC VERSUS PHILIP MORRIS



GRAPH 9
CARBON MONOXIDE DELIVERY: TITL VERSUS FTC



PM3001060435